A. SUMMARY OF FUNDING REQUEST.

This Component II proposal from the Massachusetts Department of Public Health (MDPH) requests $2,700,000 for a cross-jurisdictional initiative designed to address significant gaps in the state's local public health infrastructure. The overall goal of the proposed Massachusetts Component II project is to redevelop the public health infrastructure so as to significantly increase the capacity of local public health authorities to perform core functions in areas for which they have critical responsibilities, including infectious disease, food borne illness, tobacco control and obesity. The package of improvements proposed here focuses primarily on the categories of *Performance Management* and *Public Health System Development / Redevelopmen*t, and on the key areas of (A) *Health Promotion and Disease Prevention* and (C) *Health IT and Communications Infrastructure* (especially vital statistics system and electronic IT reporting and monitoring systems). Project objectives for Component II are: (1) transform the way public health operates at the local level through the development of regional districts with the capacity to more effectively provide the core public health core functions, (2) a major expansion in reach and capabilities for two key statewide reporting and monitoring systems (disease surveillance and vital records) and (3) improved availability and use of key data for local health assessments.

Our Component I plan, described elsewhere, will help MDPH improve performance management agency-wide, design quality improvement projects within selected bureaus of the Department and stimulate and support quality improvement projects at selected local health departments. Component I performance improvement and QI activities will support, though they do not duplicate, the specific objectives and activities in Component II.

B. BACKGROUND.

(1) Need for project:

"*Resources for local health departments have diminished at the same time that responsibilities of local health practitioners have increased significantly . . . These inverse trends have yielded a local public health workforce not always able to provide the basic, essential public health services to their residents, as well as significant inequities across the Commonwealth in residents' ability to access these services*."

- Massachusetts Public Health Regionalization Project (2009)[1]

Massachusetts has the lowest rate of uninsured residents in the nation and is a national innovator in such areas as tobacco control, HIV prevention, and strategies to address health equity. But the health of the state's 6.6 million residents is compromised by significant gaps in the local public health infrastructure. Faced with inadequate funding and increasingly complex health challenges, few municipalities come close to being able to meet the core functions and essential services that CDC defines for public health systems. Instead, local health officials in suburban communities, small aging industrial cities, and rural towns are performing public health triage, providing only those services that they consider most essential at any given time. Local public health departments also lack the ability and resources to take advantage of reporting systems and other technology that could aid their work. According to the most recent statewide needs assessment of local health boards and departments, nearly all responding communities reported they found it challenging to prevent chronic and infectious disease and injuries (98%), ensure a competent public health care workforce (97%), and apply basic environmental public

health regulations (89%). Scores of municipalities consistently fail to inspect restaurants twice annually, as required, leaving many Massachusetts residents at risk of food-borne illness. About one fifth of western Massachusetts communities have no public health agent and fail to keep records of reportable diseases. There are no minimum state qualifications (education, work experience, or credentials) for local public health staff. There is no statewide system of mutual aid for communities to share public health emergency services without legal liability risks. And while there is a statewide system for sharing of health data and reportable diseases, less than half of the state's local health departments have adopted the technology.

Among the key gaps and concerns:

(a) *Fragmented local infrastructure*: Massachusetts ranks 44th in land area among the states, but has more local health departments than any other. There are no county or regional public health departments. Instead there are 351 separate cities and towns, each with its own Board of Health responsible for assuring access to a comprehensive set of services defined by state law and regulation. Massachusetts Boards of Health are authorized to develop, implement, and enforce health policies, oversee inspections to maintain minimum standards for sanitation in housing and food service, and assure that the basic health needs of their community are being met.[2] They are responsible for disease prevention and control, health and environmental protection, and general community health promotion. Boards of Health are legally autonomous from the Massachusetts Department of Public Health (MDPH). Local health authorities cooperate actively with MDPH and the Massachusetts Department of Environmental Protection, but local health agents are not subject to the authority of the MDPH commissioner.

Unlike most states, Massachusetts has no dedicated state funding to support local public health core operations, so most local boards are wholly dependent on local revenues and are severely limited in personnel and resources. In a 2006 report on the public health workforce in Massachusetts, the authors noted that more than 70% of local public health officials reported not having enough staff to consistently fulfill their basic public health responsibilities. Approximately 63% of communities with populations of 10,000 or less have no full time public health staff to serve their residents. (All communities with populations of 20,000 or more reported at least one full time staff member.) Twelve percent (12%) of public health authorities do not have a public health director, agent or commissioner, and 23% of municipalities reported that they are not able to offer services provided by public health nurses, such as flu vaccine clinics and health screenings. When asked about additional public health staff needed to meet local and state needs, 46% requested additional inspectional services staff and 27% reported needing public health nurses and administrative support staff.[3] This fragmentation affects sections of the state with some of the greatest health needs. For example, in the recently released national County Health Rankings, Hampden County in southwestern Massachusetts ranked 14th among the state's 14 counties, last-place in mortality, morbidity and socio-economic factors (such as education, poverty, single-parent households and violent crime), and a next-to-the-last in health risk factors, which include smoking, obesity, chlamydia and teen pregnancy.[4] With a population of less than 500,000, Hampden County has 23 local boards of health.

In response to the lack of a systematic regional system a diverse group of stakeholders, including local health authorities, MDPH, legislators, and academic partners have spent the last several years promoting the creation of public health districts to improve the quality and scope of public health services and to take best advantage of limited available resources.

(b) Incomplete reach of key statewide reporting and monitoring systems: Another gap concerns the capacity of local authorities and local health care providers to participate in critical statewide reporting and monitoring systems. Two of these systems will be involved in the proposed infrastructure project.

(i) The Massachusetts Virtual Epidemiologic Network (MAVEN) is a web-based disease surveillance and case management system, launched in 2006, that enables MDPH and local health departments to share priority public health notifications, laboratory results and clinical data efficiently and securely over the internet. MAVEN allows the direct reporting of notifiable diseases by clinicians and local health, appropriate data-sharing between state and local health, and improved data management and analysis. In addition to reports of diagnosed disease, MAVEN automatically triages laboratory evidence from the Bureau of Laboratory Sciences, clinical laboratories, and most private laboratories in the Commonwealth and nationwide for use by epidemiologists of the various Bureau Divisions and Programs. The majority of disease surveillance data, including TB and vaccine-preventable, foodborne, and zoonotic diseases have already been migrated into MAVEN, with STDs and refugee/immigrant health currently in the process of migrating their datasets and building case definitions and case management workflows in the system. HIV/AIDS surveillance is proposed to be migrated pending available resources and community engagement. Yet barely 50% of local boards of health currently utilize MAVEN – significantly limiting the effectiveness of statewide disease surveillance and case management, and the effectiveness of the local response.

(ii) Having timely and accurate death certificate data is fundamental to understanding and addressing some of the state's most important health issues. As Hynes et al. have noted, "mortality data are some of the best sources of information about the health of living communities. They provide a snapshot of current health problems, suggest persistent patterns of risk in specific communities, and show trends in specific causes of death over time."[5] During outbreaks or emergencies, real-time death data is necessary for local and state officials to work together to evaluate the effects of the public health emergency. Yet today, Massachusetts relies on a paper-based system involving funeral directors, local boards of health, city and town clerks and MDPH. Massachusetts is introducing a new Vitals Information Processing (VIP) system which has been partially funded with state dollars and will begin electronic birth reporting in 2011. At the national level, the National Center for Health Statistics (NCHS) has begun to speed up its reporting in order to publish preliminary data on deaths more quickly. The state's ability to collect and report this data quickly and accurately will be severely comprised without additional funding to complete the electronic deaths component of the VIP system. Local public health efforts will be handicapped if death data is inaccurate, incomplete or not up-to-date.

(c) Limited availability and utilization of data for local public health assessment: Accurate and accessible local and regional data is essential for carrying several of the 10 Essential Public Health Services, including "monitoring health status to identify community health problems", "informing, educating, and empowering people about health issues" and "mobilizing community partnerships to identify and solve health problems." Aside from Boston, local health departments do not usually have resources or dedicated staff for in-depth data analysis of their populations. This hinders the ability of local public health to formulate targeted, informed interventions. Massachusetts has more than three dozen data sources used regularly by MDPH to inform its work. MDPH makes this data publicly available through a free on-line health data query system called MassCHIP (Massachusetts Community Health Information

Profiles), which contains 39 de-identified data bases, including the traditional health data such as vital statistics, cancer registry data, communicable disease, census data, hospital discharge and ED visit data, and substance abuse treatment admissions. A great strength of MassCHIP is that it includes "non-health" data from other state agencies including the school department, the Division of Employment and Training (i.e. unemployment figures), the Department of Transitional Assistance (welfare) and the Department of Children and Families (children in foster care). MassCHIP needs to be rebuilt to a fully web-based platform in order to continue its mission of free access to public data. The current system requires users to download software in order to run customized queries; thus, it loses compatibility with each new operating system of Microsoft. It also has never been compatible with Mac software. While it has been utilized somewhat by local boards of health, many more could benefit from these data if training were more universal and if the technology easier to use. In the very near future, unless MassCHIP is transformed into a fully web-based system, it will cease to exist – depriving local public health and other users of vital information for understanding and assessing health conditions in their communities and designing approaches to deal with it. For example, as part of a broader effort to combat obesity, statewide regulations enacted in 2009 require public schools to regularly perform Body Mass Index (BMI) screenings on all students and report their findings to parents. But without a modernized MassCHIP to make this information readily available to a wide range of users, including the general public, the full potential of that arduously collected BMI data to shape policy and change behavior will not be realized.

(2) Goals and objectives: The overall goal of the proposed Massachusetts Component II project is to ***transform the public health infrastructure*** so as to significantly increase the capacity of local public health authorities to perform core functions in areas for which they have critical responsibilities and to utilize state-wide data and reporting systems to improve core health outcomes, including infectious disease, food borne illness, tobacco control, and obesity.

To achieve this goal, the project has the following objectives:

Objective 1. Create a system of regional public health districts: By 2015, transform the Massachusetts local public health infrastructure and improve population health outcomes by covering at least half of the state's population in public health districts, through which groups of communities will share staff and cooperate to provide core public health services for residents. The new districts will be created with the goal of ensuring that all of the state's municipalities are served by qualified public health professionals. New districts will help prepare member communities for voluntary national accreditation by conducting formal community health assessments using standards protocols. They will enable municipalities to address the mandated responsibilities of Massachusetts Boards of Health and to build capacity in infectious disease, food borne illness, tobacco control and obesity prevention.

Objective 2. Implement state-of-the-art reporting and monitoring systems linking local and state public health entities throughout Massachusetts:

(a) Massachusetts Virtual Epidemiologic Network (MAVEN): (i) Employing policy change, IT infrastructure improvements, training and technical support for local boards of health (and the newly created districts), as well as the completion of current data migration processes, by 2012 achieve a minimum 95% local participation in the MAVEN web-based disease surveillance and case management system. (from the current 50%). (ii) By 2013, add HIV/AIDS to MAVEN.

(b) Death records: By mid-2012, implement a new electronic death registration system, with uniform registration and issuance of death records to 100% of cities and towns. Train users in the system, including funeral directors, boards of health, physicians and medical examiners.

Objective 3. Ensure that there is universally accessible and useful data for local public health assessment: (i) By 2012, recreate the MassCHIP (Massachusetts Community Health Information Profiles) on-line health data query system as a fully web-based system. (ii) By 2013, through system enhancements, new dissemination strategies, extensive training and the rollout of new modules and functions identified as priorities by local public health and other users, provide customized local data to all the newly created health districts that are part of the regionalization pilots as a part of this grant. Increase the number of data queries by 25% (from 80,000 to 100,000).

(3) How the proposed infrastructure investments are linked to system improvements and health outcomes: The carefully crafted package of infrastructure investments proposed here targets critical inequalities in the Massachusetts local public health infrastructure, which the state's health leadership has identified as a major barrier to achieving public health priorities, fulfilling the promise of health care reform and succeeding in CDC's identified "winnable battles" in tobacco, obesity, food safety and HIV prevention. Local public health is the vehicle by which most of these priorities are addressed, but a significant portion of the state's local public health infrastructure is simply unable to carry its load. To succeed in tobacco prevention, the state relies on local cities and towns to enforce the state-wide law on tobacco sales to minors. Food inspections occur at the local level. During H1N1, local boards of health played a pivotal role in working with schools, the state, and city administrators to communicate and respond to ever-changing circumstances. Local boards know their communities and can devise outreach strategies best suited to the demographics and particulars of their community.

(a) Ensuring the success of health care reform: In the wake of the Massachusetts and federal health care reform laws, public health authorities are being tasked with a major role in helping residents prevent and manage chronic and other diseases. In 2008, the Institute of Medicine identified local government actions as key to front-line efforts addressing obesity prevention. A 2009 report by the National Academy of Sciences noted that, "the places in which people live, work, study, and play have a strong influence on their ability to consume healthy foods and beverages and engage in regular physical activity. Local governments make decisions every day that affect these environments."[6] And as Thomas Frieden argued in a 2004 editorial in the *American Journal of Public Health*, it is urgent that local health departments "adjust to the epidemiological transition from communicable to chronic disease."[7]

Massachusetts is proud to be a leader in such efforts. Our *Mass in Motion* anti-obesity campaign combines statewide action with municipal wellness and leadership grants to cities and towns to implement policy and systems strategies that address obesity, nutrition and physical activity. The city of Boston has attracted major federal and national foundation funding for innovative programs in obesity, tobacco and asthma control. But significant parts of the state lack the public health capacity to participate meaningfully in such efforts. Some of these same communities are also those experiencing the greatest disparities in chronic disease, HIV and other health concerns such as teen pregnancy. Many of these disparities are closely associated with race/ethnicity – small aging industrial cities such as Chelsea, Holyoke and Lawrence are now majority Latino; others such as Brockton and the old fishing port of New Bedford are home

to large numbers of Haitian and Cape Verdean immigrants; and Lowell is home to the second largest population of Cambodians in the nation (after Long Beach, California).

(b) *Winnable battles in improving health outcomes*: The proposed project targets several of the CDC's "winnable battles" in public health - tobacco, obesity, food safety and HIV prevention – for which lack of local or cross-jurisdictional capacity is proving a major barrier to continued success. Three examples:

(i) Tobacco: Massachusetts has a long history of activism and leadership, which has produced real results: the state's smoking rate fell to 16.4% in 2007, the 4th lowest rate in the nation; illegal sales of tobacco were cut in half from FY 2006 to FY 2007; the youth smoking rate fell from 20.5% in 2005 to 17.7% in 2007; and with a 98% compliance rate, the Commonwealth's smoke-free workplace law has been effective at protecting Massachusetts residents from secondhand smoke. But some communities lack the capacity to conduct compliance checks and other enforcement activities necessary to continue to momentum. As the statewide strategy shifts toward regulation of point-of-purchase advertising and potentially to aggressive in-store counter-advertising, local understanding and enforcement of the new regulations will become still more critical. The project's regionalization strategy (Objective 1) will support shared staff who can carry out tobacco compliance activities in multiple communities in a region.

(ii) HIV/AIDS: Massachusetts, through its deployment of evidence-based prevention interventions at the individual, group, and community levels, structural interventions (such expanded access to sterile injection equipment), routine and targeted HIV screening, and near-universal access to medical care and effective antiviral medications (resulting from state health care reform and substantial state investment in its HIV Drug Assistance Program) has seen a dramatic decrease in the incidence of HIV infection and a slowing of the growth of the prevalence of HIV/AIDS. In 2001, a total of 1,237 cases of HIV infection were reported to the state HIV/AIDS Surveillance Program. In 2008, the most recent complete year of data, only 563 cases were reported, a 54% decrease. Reductions in incidence span all age, sex, and race/ethnicity categories. Reported cases among injection drug users are approaching single-digit percentages of all new cases. Remaining incidence is clustered in men who have sex with men, black and Hispanic individuals, and non-US born populations. Massachusetts is committed to focusing on the populations at disproportionate risk. The state is poised to pilot innovative new strategies to further reduce this low rate of new infections. As a result of the proposed upgrades to and data matching capabilities in MAVEN (Objective 2) we will gain the ability to rapidly pinpoint local links among new viral hepatitis, STD, and HIV infections, enabling more intensive and targeted surveillance and prevention efforts to those communities where HIV/STD clusters have been identified.

(iii) Obesity: Approximately 18 months ago, Massachusetts launched a multi-faceted campaign called *Mass in Motion*. This effort began with our convening a broad-based steering committee composed of local health departments, schools, community-based agencies (including the "Y" and Boys and Girls Clubs), academic organizations and local activists. With the assistance of this group, we reviewed the most up-to-date data, analyzed the best practices and completed an inventory of existing efforts, which highlighted key gaps. *Mass in Motion* combines statewide action with municipal wellness and leadership grants to cities and towns to implement policy and systems strategies that address obesity, nutrition and physical activity. Currently funded through a combination of state, foundation and corporate support,

Massachusetts will be seeking additional federal funding to expand the program to more communities. The potential reach of this local-level strategy will be greatly enhanced by the regionalization activities proposed in Objective 1, which would support access to new health data (such as community level BMI testing in schools) and the collaboration of a group of contiguous communities to develop and implement a cross-jurisdictional wellness plan (such as regionally planned farmers' markets, joint recreational activities, and wellness efforts with employers that draw their workforce from multiple towns) .

C. ACTIVITY PLAN.

(1) Specific infrastructure investments, methods and activities: The proposed infrastructure investments address significant gaps in the state's local public health infrastructure and seek to improve the capacity of cities and towns across the state to carry out core public health functions that will improve health outcomes for residents. The following are the key activities for each of the project's three objectives:

Objective 1. Create a system of regional public health districts: In their 2008 study of regionalization for emergency preparedness in Massachusetts, Koh et al. concluded that: "Regionalization served as a foundation for sharing resources, coordinating planning, conducting trainings, and strengthening the public health infrastructure on a larger scale. Interviewees reported better collaboration among communities and across agencies, increased public health response capacity, and improved resource sharing that led to stronger social networks and new personal connections among professionals."[8] The proposed regionalization strategy builds on the experience with emergency preparedness regions, and on recent work by the Working Group on Public Health Regionalization, that came together in 2005 to examine the ways in which regional structures could be used in Massachusetts to enhance public health services at the local level. This work received a major boost from the 2009 enactment of a new state law that brought about long overdue changes to rules governing how cities and towns may co-hire health staff and form public health districts in Massachusetts. It has been strengthened with funding from the Robert Wood Johnson Foundation for a Practice Based Research Network that is assisting three groups of communities in western Massachusetts to explore formation of public health districts.

The five-year regionalization strategy proposed here will transform the Massachusetts local public health infrastructure and improve population health outcomes by creating new public health districts through which groups of communities will share staff and cooperate to provide core public health services for their combined residents. The strategy has four main elements:

(a) Office of Local Health: By 2011, establish a new Office of Local Health at MDPH that will serve as an institutional home for regionalization, working closely with other MDPH programs (especially those concerned with infectious disease, foodborne illness, tobacco and obesity) to support cross-jurisdictional integration. The Office will support collaborative planning among communities, provide training and technical assistance on governance, financing, service delivery, and other issues to communities implementing regionalization plans; develop and disseminate as training materials, templates, and toolkits; and serve as a liaison with Regional Planning Agencies, municipal officials, and other entities to promote public health districts and improved effectiveness of the local health infrastructure.

(b) District Incentive Grant Program: The District Incentive Grant (DIG) Program will provide planning grants, followed by multi-year implementation grants, to enable at least seven sets of communities in at least three different geographic regions to enter into formal agreements

to share public health services and co-employ professional staff. Combined with matching funds that DPH anticipates it will be able to raise in conjunction with this project, the DIG Program will result in the formation of at least ten new districts that will cover half of the state's population, including Boston as an independent district. Each district created with DIG Program funding will be required to:

- meet population and land area thresholds designed to cover as much of the state's population and as many communities as possible
- address the range of statutory responsibilities of Boards of Health in Massachusetts – including accurate reporting and monitoring of diseases (via MAVEN)
- develop municipal-level policy change implementing CDC-sanctioned best practices to address winnable battles of public health, including tobacco control and food safety
- employ a qualified workforce, according to standards to be developed by MDPH in cooperation with public health professional associations
- conduct community health assessments using a standard national tool including the data made available by MassCHIP
- cooperate with the project evaluation.

The District Incentive Grant Program will take advantage of work that has been conducted over the last five years in Massachusetts to build broad-based support for developing public health districts. This effort has been led by the Boston University School of Public Health in conjunction with MDPH and the state's five professional public health associations, including the Mass. Public Health Association (affiliated with APHA), Mass. Health Officers Association (affiliated with NACCHO), Mass. Environmental Health Association (affiliated with NEHA), Mass. Association of Public Health Nurses, and Mass. Association of Heath Boards. Recommendations of the Regionalization Working Group were recently endorsed by a task force created by the legislature and led by the state Lieutenant Governor, which was created by the legislature to study opportunities to regionalize a wide range of municipal services, including public health.

A variety of communities have already expressed strong interest in participating in the program, including Worcester, the second largest city in New England, which is prepared to develop a public health district in central Massachusetts. Other examples of communities that are strong candidates to lead district formation include New Bedford, in southeastern Massachusetts and Gloucester, in northeast Massachusetts, as well as the western Massachusetts communities currently participating in the Massachusetts Practice Based Research Network.

The DIG program will include the following components:

Planning and Capacity Building for Implementation—In the first quarter of Year 1, MDPH will establish the Office of Local Health, responsible for assessing and prioritizing which communities have the greatest public health capacity needs, developing a request for proposals with detailed eligibility guidelines and program requirements, providing technical assistance to communities considering applications, and managing the incentive grant program roll-out. The Office will be a streamlined operation located within the MDPH commissioner's office under the direction of the commissioner's senior policy advisor. The effort will be aided by strong external partnerships with Regionalization Working Group members, including the Boston University

School of Public Health, Massachusetts Association of Health Boards, and Institute for Community Health, which co-manages the Massachusetts Practice Based Research Network.

- *Planning grants*: By November, 2010, MDPH will develop and issue a Request for Proposals (RFP) for planning grants to provide flexible support totaling up to $50,000 for groups of communities to explore partnerships, assess health priorities, identify service gaps, develop draft governance agreements, develop plans on how to share staff and services and secure support from municipal officials and Boards of Health. Because of work that has been underway in various communities over the past year, different groups of communities are at different stages of readiness to develop public health districts. We will offer a rolling deadline for planning grant applications through Year 1 and will provide outreach, training, and technical assistance to support planning processes that will average 9 to 12 months for each group of communities.

- *Implementation Grants*: Following successful planning efforts, we will award four-year implementation grants to enable communities to form public health districts that will meet performance standards outlined above. Funding of up to $150,000 will be available for each district to expand capacity to meet critical needs, such as hiring public health nurses, epidemiologists, or food and housing inspectors. Implementation grants may also support health agents to direct new districts and provide professional public health services for the first time to communities that currently lack staff. Full implementation funding will be provided for three years, followed by a fourth year with reduced funding to assist districts make the transition to local sustainability. Given the legal structure of public health authority in Massachusetts and the fact that there is no state operational funding for local public health to provide leverage or a *de facto* mandate to regionalize, there is strong consensus among all stakeholders that incentive funding is the only way to transform the state's local health infrastructure.

(c) Evaluation: The third major element of the regionalization strategy is a formal evaluation to be conducted under a subcontract by the Institute for Community Health (ICH), which has deep experience in evaluation research and local public health issues. During Year 1, ICH will work with public health leaders from each community participating in the planning of a regional health district to assess their capacity to gather, analyze and utilize evaluation and performance management data. An instrument will be developed to systematically assess the: 1) understanding of the purpose of evaluation and evaluation methods; 2) experience implementing evaluation plans; 3) experience using evaluation information to inform policy and practice. The findings will be shared with MDPH and each group of communities to inform the development of training activities to increase local capacity for evaluation and performance management activities. To build local evaluation capacity, during years 2-4, ICH will provide training and technical assistance to local public health officials on principles of evaluation and how to use existing data sources (e.g., MAVEN, internal records, MassCHIP) to assess performance, identify needs, and develop corrective action plans. ICH has developed a training program for local public health officials as part of their work on the Cambridge Public Health Department's Advanced Practice Center for Emergency Preparedness. This training draws heavily on Michael Quinn Patton's work on Utilization-Focused Evaluation[9] At the conclusion of Year 5, we will conduct the same assessment with participating communities to assess change in the development, implementation and use of evaluation and performance management data.

(d) Sustainability planning: In Years 4 and 5, a major focus of the regionalization strategy will be sustainability planning – both in terms of ongoing implementation funding for the current districts and support for more regions in forming new districts. Through this project we seek to

demonstrate not only of the ability of communities to come together in a district but to achieve measurable public health gains as a result. Evidence of such gains will be a strong argument for new state funding to support the regionalization work. In addition, by building local capacity, the districts can compete more effectively for both state funding (such as *Mass in Motion* municipal wellness grants) and federal opportunities through the new Prevention Fund.

Objective 2. Implement state-of-the-art reporting and monitoring systems linking local and state public health entities throughout Massachusetts:

(a) Massachusetts Virtual Epidemiologic Network (MAVEN): Funding will support the roll-out of the web-based MAVEN disease surveillance and case monitoring system to all Massachusetts cities and towns, improving the completeness, timeliness, and accuracy of infectious disease reporting and case management across all disease areas managed by the MDPH Bureaus of Health Care Safety and Quality, Infectious Disease and Laboratory Science (State Laboratory). This proposal will employ policy change, IT infrastructure improvements, training and technical support for local boards of health, and the completion of current data migration processes. The three-year roll-out plan is as follows:

- Year 1: Significant technical improvements will need to be put in place prior to system expansion, including the purchase, installation, and configuration/allocation of dedicated hardware at the state's Virtual Gateway, an internet portal designed by the Executive Office of Health and Human Services to provide the general public, medical providers, community-based organizations and state government staff with online access to health and human services. Specific needs include computer server RAM and CPU capacity, database storage capacity, as well as the expansion of application server capacity. Significant ongoing IT support will be needed throughout the roll-out period, as the MAVEN system assumes the entire surveillance and epidemiologic load of the Bureau of Infectious Disease, including identifying and resolving system bugs, adding system enhancements (e.g. new question packages requested by large jurisdictions such as Boston), and system changes requested by other MDPH programs. IT consultants will assist in the definition of program requirements, the planning of expanded IT architecture, and performance testing of enhancements. The initial migration of STD and refugee/immigrant health to MAVEN will be completed by the end of Year 1. Expanding the number of cities and towns online on MAVEN will require considerable up-front training and ongoing technical support to local public health staff.

- Year 2: Significant training and technical assistance to Local Boards of Health and newly created districts, continued resolution of technical concerns and challenges, assistance for Bureau of Infectious Disease and other MDPH epidemiologists in data analysis and interpretation to inform programmatic decision making.

- Year 3: Migration of the HIV/AIDS surveillance system from the current paper-based, stand-alone framework to MAVEN, including its current partner services coordination with the Division of STD Prevention, along with training and TA for any remaining Local Boards of Health and districts which require it.

In Years 4-5 we have budgeted for a much lower level of funding to address technical challenges, system upgrades and any remaining support needs at the local or regional level.

(b) Death records: This component has a two-year time frame. The Registry of Vital Records and Statistics is developing a comprehensive web-based Vitals Information Partnership

(VIP) system to centralize registration, statistical collection and dissemination of birth, death, marriage and divorce data for legal, public health and research purposes. Moving death records from a paper-based system to an electronic system is critically important, since it now takes six to nine months to accurately aggregate and report Massachusetts death statistics. An electronic death registration system will relieve local public health and other participants of the burden of a manual processing of papers related to death and burial certificates. It will be available to participants around the clock, and data will be available real time once captured. This will benefit infectious disease and local public health practitioners tracking deaths during an event, rather than 9 months afterward. The system will interface with other public health programs (such as MAVEN) and allow the state to communicate information to local public health.

Requirements development for the Deaths component will begin in early 2011, with development scheduled to begin in mid-2011 and implementation by July 2012. VIP is partially funded by the Commonwealth's IT Bond Fund, which has provided adequate resources for birth records only. The requested funding will allow completion of the death system and augment VIP functionality in order to provide timely and high-quality death data for public health surveillance and intervention and for preventing identity theft and fraud. The new system will track deaths electronically within 72 hours of the occurrence. [Currently it takes several months. This will allow the death data to be used for tracking pandemics and other emergencies.]

- Year 1: Requirements gathering, systems development.

- Year 2: Continue systems development. Implement death registration, amendments, issuance and statistics modules to current users, and to additional partners: funeral directors, physicians, boards of health, and the Office of the Chief Medical Examiner. Integrate with the Electronic Verification of Vital Events (EVVE) run by the National Association of Public Health Statistics and Information Systems (NAPHSIS). Continue to enroll and train death module partners to maximize efficiency and significantly improve data timeliness and quality. Integrate accounting and security paper tracking functionality.

***Objective 3. Ensure that there is universally accessible and useful data for local public health assessment*:** This objective has a two-year time-frame. We will rebuild the current MassCHIP (Massachusetts Community Health Information Profiles) on-line health data query system as a fully web-based system, with more functionality such as a more user-friendly interface, an on-line system tutorial, and enhanced statistical functions increasing the accessibility of the data and the number of users. Substantial planning work has been completed.

We will extend the use of MassCHIP by local public health partners in the following ways: a/b. We will add a geographic selector for health district, which will allow 29 of the system's 41 Instant Topics to be selectable by health district. This will allow users to examine a variety of health topics and outcomes by health district, comparing those outcomes to the state. As District Grant Incentive grantee communities enter the system we will update the District definitions dynamically to maintain currency. We will also add the District geographic selector to the query-generating component of MassCHIP to permit more detailed analysis of District health needs assessments and monitoring of interventions.

The on-line tutorial will be supplemented by hands-on trainings targeted to health care professionals throughout Massachusetts. We will coordinate regional trainings with the major Massachusetts public health organizations such as the Massachusetts Public Health Association, the Massachusetts Association of Public Health Nurses, the Massachusetts Health Officers

Association, the Massachusetts Association of Boards of Health, and the Massachusetts Environmental Health Association, as well as local public health associations. We will explore integrating these trainings with continuing education requirements of these professional organizations to add further incentives for health professionals to become active MassCHIP users. We will also work to build regional capacity to use MassCHIP through regional train-the-trainer sessions designed to distribute MassCHIP support locally.

- Year 1: Selection of the technical solution environment, the development and issuing of an RFP to select an appropriate vendor, the selection of that vendor and the commencement of the actual work.

- Year 2: Additional development work, with extensive functional validation efforts, ending with the rollout of the new system.

Years 3-5 are budgeted for significantly smaller amounts to support building functional extensions of the system and adding functions that current and potential users identify as being important to them.

(2) Key partners: This table illustrates key partnerships and partner roles by objective.

Objective	Partners	Roles
1. Regional public health districts	Local Boards of Health in areas prioritized as having the greatest capacity needs Boston University School of Public Health The state's five professional public health associations, (MPHA, MHOA, MEHA, MAPHN, MAHB), Berkshire County Boards of Health Association, the Mass. Municipal Association, Health Resources in Action, selected Regional Centers for Healthy Communities and possibly the Mass. Association of Regional Planning Agencies	Work together to plan and form public health districts Leads the Working Group on Public Health Regionalization A variety of roles, including outreach to Local Boards of Health, participation in planning activities, and provision of training and TA
2. Statewide reporting and monitoring systems	Local Boards of Health Public and private laboratories Community health centers, hospitals, private medical practices Funeral directors, city and town clerks, physicians and medical examiners	Receive training and TA to support their participation in MAVEN and the new electronic death system Electronic lab reporting Expanded reporting from electronic medical records Training and participation in the new electronic death system
3. Data for local public health assessment	Commonwealth Medicine (consulting arm of UMass Medical School) Metropolitan Area Planning Council (regional planning agency serving 100 communities around Boston and eastern Massachusetts)	Strategies for long-term sustainability of MassCHIP Potential linkage Council's "Open Indicators Project" – a state-of-the-art display development
Evaluation	Institute for Community Health	Evaluate regional collaboration planning, implementation, training and TA activities. (The other objectives will be evaluated by MDPH).

(3) Cross-jurisdictional relationships: The proposed infrastructure investments are primarily focused on building the capacity of local health departments, developing cross-community collaborations within regions, and strengthening links between key MDPH systems and local public health functions. Specific cross-jurisdictional activities include:

- Objective 1: planning grants, training and TA, implementation grants and sustainability planning to develop regional public health districts.

- Objective 2: increased accessibility of web-based MAVEN disease surveillance and case monitoring system, training and TA to Local Boards of Health to achieve 100% engagement in MAVEN; outreach and training for local physicians to increase participation in, access to and utility of death records.

- Objective 3: conversion of MassCHIP to durable web-based system, dramatically increasing the accessibility of public health data across many categories for local and regional public health assessment and other functions.

In addition, Massachusetts will join with other funded states in New England in a region-wide collaborative led by the Principal Investigators of the grant in the funded 1 states and overseen by all of the Region 1 State Health Officers. The purpose of such a collaborative is for Region 1 states to learn from each other's experiences in the emerging field of public health performance improvement as well as to seek opportunities for joint projects. Region 1 states have a successful track record of working together on performance improvement in such areas as asthma, H1N1, Eastern Equine Encephalitis outbreaks, radioactive contamination near a nuclear power plant, and health reform. The Principal Investigators of the funded New England states, along with all of the New England State Health Officers, will convene a New England-wide meeting within the first six months of the grant year to learn from each others' work to seek opportunities for joint projects. Funded states will use the dedicated funds for this initiative to convene the meeting as well as follow up conference calls. At least one joint performance improvement project is expected to be identified by the end of the first grant year.

(4) Staffing:

Office of Local Public Health - PC III Project Specialists (to be hired): Two project specialists will be hired to work within the newly created Office of Local Public Health to ensure cross-programmatic coordination of activities (e.g., infectious disease, food-borne illness, tobacco and obesity) to strengthen cross-jurisdictional integration. These specialists will oversee collaborative planning among communities, provide training and technical assistance on governance, financing, service delivery, and other issues to communities implementing regionalization plans. They will work with Regional Planning Agencies, municipal officials, and other entities to promote public health districts and improved effectiveness of the local health infrastructure. Once hired, these two positions will report directly to Geoff Wilkinson, Senior Policy Advisor to the Commissioner.

Western Massachusetts Regional Health Office (WMRHO) Director (to be hired):
Currently, MDPH has 4 managers that directly manage regional health offices. One manager splits his time between the Central and Western regional health offices, with responsibility for about two-thirds of the state's land mass. Hiring a full time director for the Western regional health office will support infrastructure improvement in the state's 4 western-most counties, which is largely rural.

MAVEN

Epidemiologist (Program Coordinator III) Integrated Surveillance and Informatics Services (ISIS): (to be hired): Currently, one FTE Epidemiologist (PCIII) manages the needs of the local boards of health (LBOHs) that are using MAVEN. Doubling this epidemiological capacity will strengthen the infrastructure to meet the increased demands for disease event reporting, tracking case management and follow up, and sharing relevant information across jurisdictions (e.g., residents who are exposed to infectious disease agents at work, in restaurants, or in educational settings in another city/town).

Program Coordinator III level staff in ISIS: This individual will provide project management support activities related to priority notification and epidemiologic follow-up that are prompted by MAVEN. This position will also provide quality assurance for the accurate designation of disease events according to well-defined disease surveillance classifications (e.g., "probable", "suspect", and "confirmed"), end-user support and training.

(5) Project management: This project to transform the Massachusetts public health infrastructure will be managed through the MDPH commissioner's office by Geoff Wilkinson, senior policy advisor to the Commissioner and a member of the Department's senior management team. Wilkinson currently manages the Department's initiatives to promote public health regionalization and also will have lead responsibility for Component I performance management activities, ensuring coordination between Components I and II. He will work closely with Kristin Golden, director of policy and planning. Golden supervises the MDPH chief information officer who has principle responsibility for managing data system objectives for MassCHIP, MAVEN, and electronic death records. Both Wilkinson and Golden will work closely with the Director of Registry of Vital Records, Stanley Nyberg (0.15FTE/ in-kind) will overall program responsibility for death reporting and will provide technical oversight and management responsibility for death reporting.

Monica Valdes Lupi, Chief of Staff, supervises the Chief Financial Officer, Carol Weisberg, who directly oversees all fiscal matters for the MDPH. Ms. Valdes Lupi will provide oversight on procurement of contracts to support consultant and contractual activities. On behalf of the Commissioner, Ms. Valdes Lupi will coordinate activities under the grant to create and fill new positions at MDPH. Project management will involve close collaboration with the MDPH Chief Financial Officer, the Director of the Bureau of Infectious Disease, who manages the MAVEN system, and with the Director of the Bureau of Health Information, Research and Statistics, who manages MassCHIP and Vital Records. The project will utilize quality improvement methods to integrate activities across bureaus and to track progress on key objectives. Senior team meetings will provide a forum for project coordination.

D. PERFORMANCE PLAN.

Objective	Milestones	Outcome Indicators
1. Regional public health districts	Establish Office of Local Health at DPH Prioritize need for DIG investments Develop and issue RFP for incentive grants Issue planning grants	50% of state's population covered in districts Each district complete community health assessments using nationally recognized protocols, e.g., NPHPS Each district carry out mandated

Objective	Milestones	Outcome Indicators
	Issue implementation grants Provide continual outreach, training, and technical assistance Assist districts with sustainability planning: Formative and summary program evaluation	responsibilities of Boards of Health in Massachusetts 100% of district communities will meet state food safety inspection requirements 100% of district communities conduct tobacco compliance checks Each district develop local policy initiative to address a winnable battle 100% of communities will receive services from qualified public health professional staff to address core legal requirements of Boards of Health, consistent with PHAB standards
2. Statewide reporting and monitoring systems	*MAVEN*: System expansion, migration of additional health areas: Year 1 Training & TA to local public health staff: Year 2 Migration of HIV/AIDS surveillance to MAVEN: Year 3 *Death records*: By mid-2012, implement a new electronic death registration system, with uniform registration and issuance of death records to cities and towns, providing 24/7 access to electronic death registration system, with real time reporting capability to support surveillance and response.	100% of STD and immigrant and refugee health databases are migrated to MAVEN, and all disease event reports are being received and processes by MAVEN 100% of planned equipment upgrades and configuration to MAVEN and the Virtual Gateway are completed 95% of local boards of health have staff trained in MAVEN and have gone live on the system to send and receive disease event data 100% of the HIV/AIDS surveillance database is migrated to MAVEN, all HIV-specific laboratory and case reports are being received and processes in MAVEN, and is MAVEN is generating standard surveillance reports to federal eHARS system Death records: 100% of cities and towns participate in electronic death registration system.
3. Data for local public health assessment	Year 1: Selection of technical solution environments, section of appropriate vendors, commencement of work (MassCHIP and Vital Records): Year 1 Development, validation and roll-out of new systems (MassCHIP and Vital Records): Year 2	MassCHIP operational on a fully web-based platform by the end of year 2. Utilization of MassCHIP data in district community health assessments 25% increase in the number of queries generated by the MassCHIP user community, from approximately 80,000 now to 100,000 queries annually by end of Year 3

Endnotes

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